

a customer's service, the interruption of another third-party provider's service, or even a complete network outage. In order to avoid interference and outages, we would have to limit access to AIN to the type requested by the first requesting party. Thus, the first requesting party could require network changes that would preclude a different type of access or new service for a second party.

We have proposed a reasonable alternative that meets the Commission's goals while solving these problems.<sup>132</sup> What is needed is a different definition of mediated access that entails providing access to the data elements and options (enabling services) but not to the actual service logic. The third-party provider, with the permission of the AIN provider, could develop a service, and then the AIN platform owner would test the service logic and build a template of it. This would allow the third-party provider to populate customer specific information.

Under our proposal, third-party providers could potentially have any services that they need. We also could make this capability available more quickly and at less cost than we could the Commission's proposed capability. We could implement our proposal in 12 months. Of most importance, network risk could be substantially mitigated. The third-party provider would be required to share its service logic for testing before deployment, but appropriate safeguards could be employed. We have been testing our proposal with IXCs. Our enhanced service operation would take the same access to AIN as all other ESPs.

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<sup>132</sup> FCC Docket 91-346 Ex Parte, Pacific Bell, March 28, 1995.

In summary, the Commission does not need to require third-party access to the BOCs' intelligent networks. Market forces are bringing this about in ways that meet customer and third-party providers' needs, without jeopardizing the integrity and reliability of the BOCs' networks. If the Commission does adopt requirements or standards, it should allow us the flexibility to continue forward as we have proposed.

**VI. NON-STRUCTURAL SAFEGUARDS PROTECT COMPETITION AND CONSUMERS**

The Commission now has years of positive experience with non-structural safeguards for BOC offerings of both enhanced services and CPE. In Part V above, we discussed the success of the non-structural safeguards related to unbundling. Other non-structural safeguards were not put in question by the Ninth Circuit U.S. Court of Appeals. In fact, the Ninth Circuit specifically upheld some of the safeguards. The Court denied MCI's challenge to the CPNI rules and found that, in adopting the new rules, the Commission's balancing of competing interests was not arbitrary and capricious. The Court identified those interests as "competitive equity, customer privacy, and the need for efficiency in the development of mass market enhanced services."<sup>133</sup> The Court also found that the Commission had adequately explained why its strengthened accounting rules would protect against cross-subsidy.<sup>134</sup>

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<sup>133</sup> California v. FCC, 39 F.3d 919, 931 (9th Cir. 1994).

<sup>134</sup> Id. at 926.

The Commission explains the efficacy of the other safeguards and points out that there "is evidence to suggest that these safeguards have been effective."<sup>135</sup> For example, for the six years of their existence, BOC nondiscrimination reports show that there has not been discrimination.<sup>136</sup> "Moreover, no formal complaints have been filed at the FCC by ESPs alleging BOC access discrimination since the Computer III Phase I Order."<sup>137</sup>

Some ESPs attempt to make much of the Ninth Circuit's reliance on the Georgia MemoryCall decision. That state decision, however, merely highlighted differences in regulatory policy between the Commission and the Georgia PSC. The Commission had previously determined that CEI safeguards were effective in preventing anticompetitive conduct in BellSouth's provision of MemoryCall service.<sup>138</sup> The Georgia PSC's contrary conclusions, applying a different standard, do not undermine that result.

Moreover, BellSouth sought and obtained preemptive relief from the Commission. The Commission concluded that its interest in BellSouth's ability to continue offering MemoryCall service, pursuant to CEI safeguards, provided the necessary foundation for preemption of the Georgia PSC's order which froze BellSouth's offering of MemoryCall. The Eleventh Circuit reviewed and upheld that preemption, affirming the primacy of the FCC's policy over that of Georgia with respect

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<sup>135</sup> Notice, paras. 28-29.

<sup>136</sup> Id. at para. 29.

<sup>137</sup> Id.

<sup>138</sup> BOC Safeguards Order, 6 FCC Rcd at 7623, n. 11; BellSouth Petition for Removal of Structural Separation Requirements, 8 FCC Rcd 4864, at n. 20 (1993).

to the offering of MemoryCall service. Thus, the Ninth Circuit's recognition of the Georgia MemoryCall decision does not in any way undermine the validity of the Commission's policy allowing integrated BOC enhanced services.

In summary, the record of experience with non-structural safeguards is excellent. In addition, we have shown that there are changed circumstances that make BOC attempts to discriminate even much less likely than they were when the Commission created the safeguards. These changed circumstances are 1) the substantial growth of the enhanced services markets, discussed above in Part II, 2) the substantial growth in network services competition, discussed above in Part IV, and 3) the substantial increase in BOC unbundling and IN competition, discussed above in Part V.

In light of these changes, the Commission should consider adjusting some or all of the non-structural safeguards to allow the BOCs more of an even chance to compete with non-regulated ESPs. For instance, the BOCs should not be required to apply CPNI rules to their fully competitive network services. As discussed above in Part III, in some areas high capacity services are fully competitive, and the CAPs have significant market shares. The CAPs do not have to meet CPNI rules for these services. Requiring the BOCs to do so places us at a competitive disadvantage since, unlike the CAPs, we must withhold some of our information from our own enhanced service providers and release some of our information to the CAPs. Similarly, some of our network services also are being provided extensively by VANs. These services include Frame Relay, SMDS, and increasingly ATM cell relay. The VANs do not face CPNI rules, and neither should we for these competitive services.

## VII. THE COSTS OF STRUCTURAL SEPARATION WOULD BE SUBSTANTIAL

As discussed above in Part II, the enhanced services market is extremely competitive and many of the largest providers (including AT&T, MCI, Sprint, and other large VANS) have their own networks. Requiring the BOCs alone to provide enhanced services structurally separated from their networks would put the BOCs at a severe competitive disadvantage and create inefficiency and confusion for the BOCs' customers.

In their affidavit, attached hereto as Exhibit A, Jerry A. Hausman and Timothy J. Tardiff show that structural separation of basic and enhanced services creates substantial societal costs. They explain that the largest cost is the delay or complete withholding of new services from the market. They estimate that the cost of the delay in allowing integrated voice mail services has exceeded well over \$10 billion since 1981.<sup>139</sup> They point out that the inability to perform integrated marketing is a major cost as well. They estimate that the overall costs of foregoing the economies of scope from joint production, including integrated marketing, would amount to over \$100 million annually.<sup>140</sup>

Here we briefly discuss examples of how structural separation would increase our costs and otherwise negatively affect the offering of our enhanced services. In particular, we discuss the negative effects that would be caused by the BOCs losing their ability to perform integrated marketing.

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<sup>139</sup> Exhibit A hereto, affidavit, p. 3.

<sup>140</sup> Id.

### **Costs Of Moving To Separate Subsidiaries**

We will have to incur significant costs if we are required to move from an integrated operation to complete structural separation. That cost can be divided into three parts: 1) the financial cost associated with eliminating attributes of integration (e.g., collocation, joint sales, joint operational support systems, and joint research and development); 2) the tremendous potential for interruption of service to the customer and potential loss of the customer's good will; and 3) the potential loss of regulated revenue due to the inability to joint market enhanced services with network services.

First, in order to accomplish structural separation, we would have to locate and lease commercial space for enhanced services equipment, move enhanced services equipment, disconnect and reconnect network services, terminate joint marketing programs, hire sales personnel, increase advertising expenses, hire additional administrative personnel, develop stand-alone operational support systems for provisioning and billing, and develop customer databases. These activities would result in substantial up-front costs which could be passed on to enhanced services consumers in the form of higher prices, to the detriment of our development of the mass market.<sup>141</sup>

Structural separation of our enhanced services also would be an impediment to future product development. The synergistic effect of developing a wide range of communications products allows for an overlap of creative ideas into the

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<sup>141</sup> For example, we estimate the cost of moving to commercial facilities and reconnecting network services, for voice mail alone, to be in excess of \$14 million.

enhanced and basic services markets. Structural separation would stifle this synergy and constrain the funding and resources necessary to do new product research and development .

Second, there is tremendous potential for disruption of service on several levels. As with any sensitive piece of equipment, there is always the potential that enhanced services equipment will be damaged during shipment or installation. Furthermore, there is the potential for service interruption as network services are disconnected and reconnected. There is potential for customer confusion as sales and service relationships are redefined to accommodate the structural separation requirements.<sup>142</sup> Finally, there is the potential for loss of customer good will if service is interrupted or if our customers' relationships with their enhanced service providers are altered.

Third, regulated revenues would be placed at risk since enhanced services solutions are today an integral part of the network services sale. It is very common for customers to require that enhanced services be included when we respond to a request for network services. If Pacific Bell cannot respond with enhanced services solutions, network services sales will be lost.<sup>143</sup> We discuss below the costs that would be caused by a loss of the ability to perform integrated marketing.

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<sup>142</sup> Confusion also would arise in other ways. For instance, we have registered the name of our Administrative Management Domain (an e-mail management service) as *Pacbell*. After structural separation, this name would need to be changed. Since this name is an integral part of our customers' e-mail addresses, thousands of address books would need to be updated causing customer confusion and inconvenience.

<sup>143</sup> For example, customers issuing Request For Proposals ("RFP") for Centrex and PBX solutions often require the respondents to include a voice mail solution in their bids.

### **Loss Of Integrated Marketing**

A large cost of structural separation is the loss of integrated marketing or "one-stop shopping" based on a single point of contact. We need this ability in order to compete and to meet our customers' needs. Our small business and residential consumers, who are less attractive to many of our competitors, are the biggest beneficiaries of our integration. They should not be denied access to information about these new services through structural separation requirements.

Our competitors integrate their marketing of enhanced and basic network services. Competitive equity requires that we have the same right. Our enhanced service competitors either provide their own network services or resell network services of ours and other LECs, IXC's, CAPs, wireless providers, or soon cable providers. Insight Research describes integrated marketing by VANs as follows:

VANs are well positioned to provide the integrated solutions and one-stop shopping many corporate clients require. For example, Advantis, a partnership of IBM and Sears Roebuck and Co., offers VAN access, outsourcing, network design and management, e-mail, EDI, access to online databases, and remote computing services.<sup>144</sup>

As discussed above in Section IV, VANs provide their enhanced services together with their own network services, including frame relay, SMDS, and ISDN, and they are beginning to provide ATM.

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<sup>144</sup> Insight Research, p. 53.



Our competitors' integrated marketing is consistent with the demands of customers. We have found that integrated marketing has been extremely important to our ability to offer enhanced services in ways that meet the needs of consumers. When the same sales representative works on a sales effort that involves both our network services and our enhanced services, we are able to achieve economies of scope from which both basic service ratepayers and enhanced service consumers benefit. Moreover, our representative is able to provide customers with a single point of contact.

In our market research, customers have told us that a single point of contact is extremely helpful in providing them with an easier process for understanding and subsequently acquiring services. A single point of contact for our services substantially reduces customer confusion. This is especially important because many customers, especially in the mass market, have not overcome the confusion created by divestiture and subsequent events.

An example of how integrated marketing creates benefits is the provision of Centrex service. Our sales representatives who sell basic Centrex service need the ability to sell voice mail and other enhanced services in order to meet the needs of customers. We also need this freedom in order to compete 1) with providers of PBX CPE solutions that provide both switching capabilities and voice mail service and 2) with other providers of both Centrex and voice mail service.<sup>145</sup> For instance, "MCI will integrate its Network Voice Mail with the customer's private branch exchange (PBX)

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<sup>145</sup> See Part II above for other examples of the convergence of enhanced and basic services by our competitors.

or Centrex, if desired, or function as a traditional service bureau."<sup>146</sup> CAPs also are positioning themselves as full service providers and gearing up to offer Centrex-like service. MFS purchased both Centrex, a Telemanagement Services Company (previously known as a Shared Service Provider) and RealCom, a Shared Tenant Provider. These moves give MFS an existing base of both Centrex and PBX customers in California. The CAPs are providing integrated marketing of these network services and enhanced services. For instance, MFS formed a subsidiary called MFS Intelenet and is producing bills that say: "MFS Intelenet is the only company that provides one stop shopping for all your telecommunications needs...[including]: International and Domestic Long Distance, 800 Service, Calling Card, Voice Mail, Conference Calling, Management Reports, Local Calling, Account Code."

Consistent with the consumer benefit from a single point of contact, the goal of the Commission has been that in general the same sales representatives who help consumers with their network services needs should be allowed to meet consumers' enhanced services needs.<sup>147</sup> Allowing us to continue to fully develop our customer relationships through integrated marketing will allow us to provide our services in the same efficient manner that our competitors provide their services. This will be the surest way for the Commission to continue to encourage the expansion of the fullest spectrum of services, to the broadest cross-section of consumers, in the shortest amount of time.

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<sup>146</sup> Insight Research, pp. 9-18.

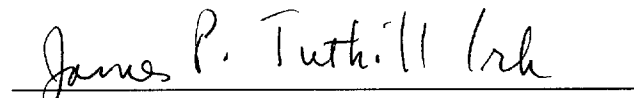
<sup>147</sup> CI-III Phase II Reconsideration Order, para. 97.

**VIII. CONCLUSION**

For all the above reasons, the Commission should reaffirm its  
Computer III policy and grant the BOCs full structural relief.

Respectfully submitted,

PACIFIC BELL  
NEVADA BELL

A handwritten signature in cursive script, appearing to read "James P. Tuthill", is written over a horizontal line.

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Date: April 7, 1995  
0110834.01

## **Exhibit A**

**BENEFITS AND COSTS OF VERTICAL INTEGRATION OF BASIC  
AND ENHANCED TELECOMMUNICATIONS SERVICES**

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## **BENEFITS AND COSTS OF VERTICAL INTEGRATION OF BASIC AND ENHANCED TELECOMMUNICATIONS SERVICES**

### **I. Introduction**

The FCC is in the process of reviewing its policies to determine the form in which the Bell Operating Companies (BOCs) may participate in the enhanced services market.<sup>1</sup> FCC regulation of enhanced services has previously addressed two potential problems, cross subsidization and access discrimination. The FCC has established two regulatory measures that significantly reduce the risk of cross subsidization. Price cap regulation, which breaks the link between direct costs and rate changes, does not allow the BOCs to raise prices above the rate caps approved by the FCC. The BOCs, therefore, do not have the incentive to set lower rates for regulated services used in the provision of enhanced services in the hope that they can increase prices for other regulated services. In addition, the FCC has implemented cost accounting rules, including detailed joint cost rules, cost allocation manuals, reporting requirements and accounting audits, that increase the ability to identify cross subsidization.

Access discrimination can arise when preferential network access is given to an BOC's affiliated enhanced services provider over a non-affiliated enhanced service provider. The FCC decided that network unbundling, in the form of discrete cost-based services and features, for services required to provide enhanced services would insure that BOCs could not discriminate against their competitors. The FCC's Open Network Architecture (ONA) framework and its unbundling policy were designed to accomplish network unbundling for features used by non-affiliated enhanced services providers to compete with the BOCs. In its recent remand decision, the Ninth Circuit required the FCC to explain and justify its decision to allow BOCs to offer all enhanced services on an integrated basis, given the current state of unbundling.<sup>2</sup> The FCC's investigation is, however, broader in scope than the minimum requirements set out by the Ninth

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<sup>1</sup>Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, CC Docket No. 95-20, Notice of Proposed Rulemaking (released February 21, 1995).

<sup>2</sup>California v. FCC, 39 F.3d 919 (9th Cir. 1994) ("California III")

Circuit. An important factor in the FCC's reconsideration will be determining whether the economic benefits to be gained by permitting vertical integration of BOC basic and enhanced services exceed the possible costs imposed on consumers of not requiring structural separation.

This paper identifies and quantifies the potential benefits and costs of vertical integration of basic and enhanced telecommunications services. In particular, we find that joint production facilitates the offering of new products and services, which provide large benefits to consumers. Focusing on voice messaging -- to date the most prominent Regional Bell Operating Company enhanced service -- we calculate that the delay in making this service available has cost consumers well over \$1 billion annually. The cost to consumers of delay has exceed well over \$10 billion since 1981. In addition, the extra production costs that would be incurred by foregoing the economies of scope from joint production would amount to over \$100 million annually. In contrast, (1) the enhanced service markets in which the BOCs operate are robustly competitive, (2) the existing Open Network Architecture rules followed by the BOCs are designed to offer nondiscriminatory access at prices that avoid cross-subsidies, and (3) all available evidence shows that these rules are working as intended and that the enhanced service market is thriving. It is clear that any benefits to competition that may arise from structural separation are far outweighed by the loss of benefits and extra costs we have identified which arise from structural separation.

The remainder of this paper has five sections. We first describe the economic principles that should guide telecommunications competition. In Section III, we examine the state of competition in information and enhanced services markets. Next, in Section IV, we measure the benefits from offering new telecommunications services. Section V quantifies the costs of structural separation. The final section summarizes our findings.

## II. Economic Principles for Economically Efficient Competition

Telecommunications markets are generally very dynamic, compared to most other markets. Products are proliferating, new firms are joining the fray, and existing firms are adjusting through alliances, mergers, and the like. The market for enhanced telecommunications services is no exception. For voice messaging, which accounts for the bulk of the BOCs' enhanced service revenues, Frost & Sullivan estimated that 1993 revenues from voice messaging services were \$1.4

billion and that the market is expected to grow at a rate of 12.7 percent annually through the year 2000.<sup>3</sup> In addition, revenues from competing voice messaging CPE are an equivalent amount and are growing at double digit rates.<sup>4</sup> In total, voice messaging revenues are approaching \$3 billion annually. Further, there are literally thousands of firms providing voice messaging services, and the BOCs are far from enjoying a dominant position. For dynamic markets like these, it is especially important that firms be able to compete on their own merits, absent regulatory rules that help or hinder particular firms. In this section, we discuss the economic principles for efficient competition in dynamic markets.

A. Telecommunications competition (including enhanced services markets) is characterized by firms competing on the basis of unique scope economies

Telecommunications has always been characterized by economies of joint production, or scope economies. With the convergence of industries -- telephony, information, etc. -- the importance of scope economies is even greater. For example, AT&T has recently acquired McCaw, which provides cellular services, including voice messaging; Sprint has formed a venture with major cable television firms, and was the high bidder at the recently concluded broadband PCS spectrum auction. Clearly, although the BOCs have long possessed economies of scope, other competing firms have their own unique economies. To provide the greatest benefits to consumers, it is essential that all firms be able to employ these economies. The results of this type of competition are lower prices for consumers and greater availability of new services in a timely fashion. Measures that unduly restrict the employment of scope economies, such as onerous structural separation requirements, will reduce the benefits from competition and harm consumers.

Economists are close to unanimous in believing that, whenever feasible, effective competition produces results superior to those of comprehensive economic regulation. The potential benefits of introducing competition into regulated markets generally are of two major

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<sup>3</sup>Frost & Sullivan, U.S. Voice Messaging Service Markets, Report 5172-63 (Dec. 1994).

<sup>4</sup>NATA, 1993-94 Telecommunications Market Review and Forecast 171 (1994).



kinds: moving prices into closer correspondence with economic costs, and dynamic improvements in productive efficiency and in product or service offerings. Competition will concentrate on the services whose prices are held above marginal or incremental costs and tend to drive those prices down to the economically proper and efficient levels. Competition also tends -- unless it is distorted by regulation -- to improve the efficiency with which services are provided, by weeding high-cost firms out of the market and by exerting pressure on the survivors to improve the quality of their offerings and to be innovative in developing and offering new services and service combinations. Thus, telecommunications regulation should allow firms to employ their economies of scope so that services can be produced at minimum cost, and should allow these firms to be free to introduce innovative services which creates large gains in consumer welfare.

III. BOC Participation in the Enhanced Services Market Has Led to Lower Prices and Greater Output

BOC participation in the enhanced services market has been good for consumers. Consumer welfare increases when prices decrease. In the voice messaging services segment, which is the primary segment of current BOC participation, prices have decreased significantly since BOC entry. The range of the price decrease has been from about \$30 per month in 1990 to \$5-15 per month currently. An additional increase in consumer welfare arises when a new product is offered to a segment of consumers for the first time. BOC success in offering voice messaging to the "mass market" of residential and small business customers has been phenomenal. Over the past 5 years BOC subscriptions have increased from essentially zero to over 6 million subscriptions.<sup>5</sup> Growth for the rest of the decade is forecast at around 12 percent per year. No anticompetitive effect has occurred in voice messaging or other segments of the enhanced services market. Thus, BOC participation has been pro-competitive and has increased consumer welfare.<sup>6</sup>

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<sup>5</sup>"Voice Messaging," Telephony, Feb. 20, 1995, at 23.

<sup>6</sup>For BOC entry to have an anticompetitive effect, output would need to be lower than it would have been if the BOCs had been prohibited from participation. No party can seriously claim that output would have been higher without BOC participation. Effects on individual

The regulatory road for the BOCs to provide enhanced services has been long and tortuous. In 1981 AT&T applied to the FCC for permission to provide "Custom Calling II" services, which included voice messaging services, on an unseparated basis.<sup>7</sup> However, the FCC rejected AT&T's request. Subsequent to the FCC's negative decision, the Modification of Final Judgment (MFJ) went into effect. The BOCs were prohibited from providing "information services" (which had a very similar definition to the FCC "enhanced service" definition) under Section II.D.1 of the MFJ. The combined effect of the FCC decision and the MFJ caused voice messaging not to be offered to residential and small business customers by the BOCs.

The following events then transpired which permitted the BOCs to offer enhanced (information) services:

1985: The FCC begins Computer III proceedings with an emphasis on allowing BOCs to provide enhanced services subject to non-structural safeguards.

1988: (i) Judge Greene authorizes BOCs to provide "gateway" information services (which includes voice messaging under the MFJ).

(ii) BOCs file ONA plans designed to ensure competitors have Comparably Efficient Interconnection (CEI).

(iii) FCC begins approving CEI plans to allow BOCs to provide individual enhanced services on a structurally integrated basis.

1990: (i) Ninth Circuit remands Computer III to FCC.

(ii) FCC authorizes BOCs to continue to provide enhanced services on an interim basis according to CEI plans.

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competitors are subsumed into the overall measure of output when a consumer welfare calculation is done.

<sup>7</sup>AT&T had already designed and begun to install the services on an unseparated basis prior to the FCC's Computer II decision, which required structural separation.

- 1991: (i) Judge Greene removes information services restriction totally.  
(ii) FCC issues remand order to allow structural integration of BOC enhanced services and approves final BOC ONA plans.
- 1992: BOCs begin offering integrated enhanced services under ONA plans.
- 1994: Ninth Circuit again remands Computer III to FCC.
- 1995: FCC authorizes BOCs to continue to provide enhanced services under the CEI plan regime.

From an economist's viewpoint, this regulatory imbroglio has created significant social costs. As we will discuss in the next section, consumer welfare would have been significantly higher if BOC voice messaging services had been offered sooner. Furthermore, government, management, and lawyers' time has been spent debating the issue of structural separation for nearly 20 years. A rational cost-benefit analysis demonstrates that the benefit to consumers of having BOC enhanced services available far exceeds any possible cost that hypothetically might arise. Indeed, we quantify these potential benefits and costs in the next sections of this paper.

As the above regulatory history demonstrates, the key dates were 1988 and 1991, when the MFJ restrictions were removed and the FCC decided to allow BOCs to offer enhanced services on a structurally integrated basis. Beginning in 1988, pending approval of final ONA plans, BOCs were permitted to offer specific enhanced services on a structurally integrated basis, subject to FCC approval of CEI plans for those services. The FCC ultimately approved blanket authorization for BOCs to offer enhanced services without a structural separation requirement in 1991. Thus, we consider data from 1988, 1991, and the most current data available to analyze the evolution of the enhanced services market.

Overall, information services are a large part of the U.S. economy, with estimated revenues of \$135.9 billion. According to the Commerce Department, information services is

"among the fastest growing sectors of the economy."<sup>8</sup> Some of the largest and most sophisticated companies in the U.S. participate in this sector, including GE, AT&T, MCI, IBM, Sears, Microsoft, TCI, Time Warner, and American Airlines.

The individual segments of the information service industry, all of which use telephone lines as well as other distribution media in varying ways, are also thriving. Enhanced (information) services have grown 15 percent a year since 1991 to reach an estimated \$15 billion in 1994. Some 65 percent of these services are delivered on-line, with the remainder delivered on CD-ROM or using wireless or other distribution technologies. Data processing and network services are another segment which has grown by over 14 percent a year since 1991 to over \$50 billion by 1994. This segment includes services such as credit card authorizations, data entry, payroll processing, electronic mail, and electronic data interchange. Lastly, computer professional services have grown by about 9 percent a year to reach \$65 billion in 1994. This segment includes systems integration and consulting services. Thus, no anticompetitive effect of BOC entry into information services has occurred. Overall, the market continues to be very competitive.

The market segment for enhanced (information) services is particularly relevant here since this segment includes many of the business which the BOCs have entered. This segment, including on-line databases, value added network services, voice messaging, and electronic mail, grew from \$7.5 billion in 1988 to \$10.2 billion in 1991 and to \$13.6 billion in 1993, which is the last available data.<sup>9</sup> Market growth in 1993 was 16 percent, which was higher than the year before. The market is expected to maintain that rate of growth for the next few years.<sup>10</sup>

Value added network (VAN) services have grown from \$0.5 billion in 1989 to \$3.4 billion in 1993. Subscription to all videotex gateways increased from 715,000 in 1988 to 6.3 million

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<sup>8</sup>U.S. Dep't. of Commerce, 1994 U.S. Industrial Outlook 25-21 (1994).

<sup>9</sup>U.S. Industrial Outlook: 1990 at 29-2, 1992 at 26-1, 1994 at 25-2. The Commerce Department discontinued this publication in 1995.

<sup>10</sup>1994 U.S. Industrial Outlook 25-2 and 29-7.

in 1994.<sup>11</sup> Electronic mail has become widely available since 1988. E-mail subscribership has grown from 6 million in 1989 to over 13 million in 1993.<sup>12</sup> E-mail revenues increased from \$574 million in 1989 to \$740 million in 1991 and an estimated \$1.2 billion in 1994. BOCs have not attained anything remotely close to a dominant position in any of these enhanced market segments.

Similarly, BOC entry into the voice messaging market segment has led to lower prices and higher demand. Between 1989 and 1991, users of voice messaging CPE more than doubled, from 5.3 million to 11.6 million, and now accounts for \$1.3 billion annually.<sup>13</sup> The overall voice messaging market segment grew from \$665 million in 1989 to \$1.1 billion in 1991 and \$1.54 billion 1994. Forecasts of future growth have the market doubling to over \$3 billion by 2000.<sup>14</sup> Forecasted annual growth over this period is 12 percent. Thus, output has expanded rapidly in the voice messaging market segment which demonstrates the pro-competitive effects of changes in FCC and MFJ regulation.

Since 1991, prices have decreased by 50 percent for most voice messaging equipment. Equipment improvements such as voice messaging boards for PCs have become widely available at relatively low cost. Thus, voice messaging equipment continues to place a significant price constraint on network-based voice messaging services.

Prices for voice messaging services have decreased greatly since BOC entry into the market segment. Frost and Sullivan states that in 1990 the average monthly fee for voice messaging was just under \$30. By 1993 the average monthly fee decreased by about 50%, or a decrease in price of over 20 percent per year. Frost and Sullivan attributes this "dramatic drop" in prices to the growth of a more competitive market, driven by the lower-priced voice messaging offered by the BOCs and the independent LECs. By 2000, Frost and Sullivan predicts a further

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<sup>11</sup>Boston Globe, Jan. 14, 1995, at 61.

<sup>12</sup>1990 U.S. Industrial Outlook 31-4; 1994 U.S. Industrial Outlook 29-7.

<sup>13</sup>NATA, 1991 Telecommunications Market Review and Forecast 135 (1991); NATA, 1993-94 Telecommunications Market Review and Forecast 171.

<sup>14</sup>NATA, 1993-94 Telecommunications Market Review and Forecast 171; Frost & Sullivan, U.S. Voice Messaging Services Markets, Report 5172-63 (Dec. 1994).

decrease in the average fee for voice messaging by about another 50 percent (pp. 3-10 to 3-11).

Regarding current market conditions, Frost and Sullivan reports that:

"Today, there are numerous providers of voice messaging services in a highly competitive market. The entrance of the BOCs and independent LECs in the late 1980s create fierce competition for the local/regional service bureaus....The RHCs and independent LECs have developed the residential end-user market, which previously had little interest in or knowledge of voice messaging." (p. 1-4)

Lower prices, increased competition, and development of a new market segment have been the result of BOC entry into the voice messaging segment of the enhanced services market. All of these outcomes lead to increased consumer welfare. This pro-competitive outcome stands in stark contrast to FCC and MFJ regulatory policy in the early and mid-1980s which led to an absence of BOC participation in enhanced service markets. Consumer welfare was lower and the economic efficiency of the U.S. economy was lowered by these misguided regulatory policies. Thus, as we discuss below, the FCC policy of structural integration and removal of the MFJ restrictions on information services provision by BOCs has led to a significant increase in consumer welfare which easily exceeds over \$1 billion per year.

We finally observe that the voice messaging market is very unconcentrated. The BOCs and GTE combined account for about one-sixth of voice messaging revenues combined. However, individual LEC market shares are much lower. BOC market shares for voice messaging services range from around 6 percent for Bell Atlantic, BellSouth, and Pacific Telesis, to about 1 percent for NYNEX. Competition continues to be very strong for voice messaging customers, with both service prices and equipment prices decreasing at a rapid rate.

#### IV. Consumer Welfare from New Telecommunications Services

##### A. The Economic Importance of New Telecommunications Services

Regulatory restrictions which are designed to facilitate competition may often have a potentially much larger negative effect on consumer welfare which cannot be ignored: restrictions

on the introduction of new goods and services.<sup>15</sup> Consider the introduction of a new telecommunications service which is not presently available -- call it home distance learning over personal computers. The demand for such a service will exist, as will a demand curve, which is a schedule of quantities which would be bought at each monthly service price. See Figure 1. At lower prices more service is demanded, but even at quite high prices some demand remains from people who value the service quite highly. If the service were offered at price  $p_1$  in Figure 1, all those individuals who would have paid more than  $p_1$  receive the difference between what they would have paid and what they actually pay in increased consumer welfare. This added value is called the consumer's surplus and is the area labelled A in Figure 1. Consumer's surplus is a dollar measure of increased consumer welfare, and is almost universally accepted by economists and policy makers in valuing the effects of economic policy.

Now suppose because of regulation that home distance learning is not offered. For instance, if structural separation is required, the cost of the BOCs providing home distance learning might well be sufficiently high that, at prices which would be charged, insufficient consumer demand would exist to make the economic return on the investment high enough to justify the investment.<sup>16</sup> The home distance learning application would then not be offered. No matter how much an individual is willing to pay, he cannot buy the home distance learning service. Indeed, the price might as well be infinity because no one can buy the service. If regulation is changed and the service is introduced, the price decreases from infinity to  $p_1$ . To measure the gain in economic welfare, we use the change in price from the "virtual or reservation price" which causes zero demand, price  $p_2$  in Figure 1, to the price that will be charged, which

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<sup>15</sup>The welfare effect of delayed introduction of new goods or services has not been considered in most analyses of the economic effects of regulation. See, e.g., P. Joskow and N. Rose, "The Effects of Economic Regulation," in R. Schmalensee and R. Willig, Handbook of Industrial Organization, vol. II (1989) for a review of the effects of regulation.

<sup>16</sup>While the demand curve in Figure 1 demonstrates that some consumer demand would exist unless prices became quite high, at high prices caused by high costs demand may not be enough to cover the fixed costs of providing the service. Fixed costs of providing enhanced services are almost always a large component of the overall costs of providing the service.

is  $p_1$  in Figure 1.<sup>17</sup> The large change in price will lead to a large increase in economic welfare so long as significant demand exists for the new product or service.

The economic theory of the valuation of new goods was developed by the Nobel Prize winning British economist Sir John Hicks in 1940. In recent papers, Hausman further developed the theory and has applied it to measuring the consumer welfare cost of the delay in the introduction of cellular telephone.<sup>18</sup> We will first apply the theory to the case of voice messaging, which had a delayed introduction of approximately 5-7 years, to demonstrate the large potential losses in consumer welfare from regulatory-caused delays or even permanent postponement in the introduction of new telecommunications services.

### B. Consumer Welfare Losses from the Delay in Voice Messaging

Voice messaging using central office-based telephone technology was sufficiently developed to begin operation in the early 1980's in the U.S.<sup>19</sup> As noted, AT&T applied for permission with the FCC in 1981 to provide "Custom Calling II" services, which included voice messaging services, on an unseparated basis. However, the FCC rejected AT&T's request, mainly because of fears of cross subsidy.<sup>20</sup> AT&T had claimed that it would need to redesign its network equipment to provide messaging on a structurally separated basis, but the FCC rejected the claim. AT&T stated that a redesigned system for structural separation would take three years to introduce, and the additional cost would be substantial. The FCC decided that, since it was "technically possible" to provide structurally separated voice messaging, AT&T would not be

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<sup>17</sup>For an application of the theory of the valuation of new goods and extension of the theory in a non-regulated context, see J. Hausman, "Valuation of New Goods Under Perfect and Imperfect Competition," MIT Working Paper (June 1994a).

<sup>18</sup>The papers are J.R. Hicks, "The Valuation of the Social Income," Economic Journal (1940); Hausman, 1994a, op. cit.

<sup>19</sup>See R.F. Rey, ed., Engineering and Operations in the Bell System (1983) for an early description of the development of AT&T's custom calling services.

<sup>20</sup>AT&T Petition for Waiver of Section 64.702 of the Commission's Rules and Regulations ¶18, 88 F.C.C. 2d 1 (1981). The FCC recognized the presence of economies of scope in voice messaging (¶17) but feared a "slippery slope" that would create regulatory uncertainty.



allowed to provide it on an integrated basis (§53). Extra economic costs due to structural separation had only a minor role in the FCC decision. Subsequent to the FCC's negative decision, the Modification of Final Judgment (MFJ) went into effect. The BOCs were prohibited from providing "information services" (which had a very similar definition to the FCC "enhanced service" definition) under Section II.D.1 of the MFJ. The combined effect of the FCC decision and the MFJ caused voice messaging not to be offered to residential and small customers by the BOCs.<sup>21</sup> Competing service providers did not offer voice messaging services, despite their previous claims that the equipment already existed which would permit them to offer the services, and despite the FCC's belief that competing service providers would offer the services (§85, §103). Thus, residential and small business customers did not have the opportunity to purchase voice messaging services.

In March 1988 Judge Greene authorized the BOCs to provide transmission (but not content) based information services. Also in 1988 the FCC began approving comparably efficient interconnection (CEI) plans which allowed the BOCs to provide individual enhanced services, such as voice messaging, on a structurally integrated basis. These changes in regulation permitted the BOCs to begin to offer the voice messaging services they had originally petitioned the FCC to provide in 1981. In practice, the BOCs began to offer voice messaging services in 1990. Demand growth for voice messaging has been extremely rapid, with current BOC subscriptions at about 6 million customers. Clearly, the demand for voice messaging existed in the U.S. in the 1980's. The technology also existed to permit voice messaging to be offered on an economical basis. However, the combination of FCC regulation and the information services prohibition of the MFJ delayed the introduction of voice messaging services in the U.S. for somewhere between 5-7 years. We now calculate the effect on consumer welfare of the delay in voice messaging services in the U.S.

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<sup>21</sup>AT&T had told the FCC that it would not be economic to provide voice messaging services on a structurally separated basis, but the FCC rejected the claim. Medium and large businesses were able to use voice messaging services through their internal PBXs. These PBXs often had extremely similar designs to the Central Office Switches (COS) used by the BOCs, e.g. the Northern Telecom switches. However, the BOCs were prohibited from using their COSs to offer voice messaging services to their customers due to FCC rules and the MFJ.